

Claims 1-15 (Cancelled).

2017
Claim 16 (Currently Amended). A peptide, which is ~~IP-131 Asp 20~~ → Lys, having has the sequence of SEQ ID NO.: 6 or a homologous sequence thereof which differs from SEQ ID NO.: 6 by one or more conservative or non-conservative changes, wherein said homologous sequence exhibits substantially the same activity or binding characteristics or both as SEQ ID NO.: 6 exhibits IL-2R β -chain binding activity and/or lymphocyte stimulatory activity.

Claim 17 (Cancelled).

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Claim 18 (Currently Amended). The peptide of Claim 16, which is ~~IP-131 Asp 20~~ → Lys, having has the sequence of SEQ ID NO.: 6 or SEQ ID NO.: 8.

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Claim 19 (Currently Amended). The peptide of ~~Claim 15 or~~ Claim 16, which is a homologous sequence of ~~SEQ ID NO.: 2 or~~ SEQ ID NO.: 6, having with a conservative change of non-polar R-groups by other non-polar R groups in amino acids thereof, which exhibits IL-2R β -chain binding activity and/or lymphocyte stimulatory activity.

Claim 20 (Currently Amended). The peptide of ~~Claim 15 or~~ Claim 16, which is a homologous sequence of ~~SEQ ID NO.: 2 or~~ SEQ ID NO.: 6, having with a conservative change of uncharged polar R groups by other uncharged polar R groups in amino acids thereof, which exhibits IL-2R β -chain binding activity and/or lymphocyte stimulatory activity.

Claim 21 (Currently Amended). The peptide of ~~Claim 15 or~~ Claim 16; which is a homologous sequence of ~~SEQ ID NO.: 2 or~~ SEQ ID NO.: 6, having with a conservative change of charged polar R groups by other charged polar R groups in amino acids thereof, which exhibits IL-2R β -chain binding activity and/or lymphocyte stimulatory activity.

Claim 22 (Currently Amended). The peptide of ~~Claim 15 or~~ Claim 16, which is a homologous sequence of ~~SEQ ID NO.: 2 or~~ SEQ ID NO.: 6, wherein Lys is substituted for Arg, or ~~vice versa~~ Arg is substituted for Lys so that a positive charge is maintained and which exhibits IL-2R β -chain binding activity and/or lymphocyte stimulatory activity.

Claim 23 (Currently Amended). The peptide of ~~Claim 15 or~~ Claim 16, which is a homologous sequence of ~~SEQ ID NO.: 2 or~~ SEQ ID NO.: 6, wherein Glu is substituted for Asp, or ~~vice versa~~ Asp is substituted for Glu so that a negative charge is maintained and which exhibits IL-2R β -chain binding activity and/or lymphocyte stimulatory activity.

Claim 24 (Currently Amended). The peptide of ~~Claim 15 or~~ Claim 16, which is a homologous sequence of ~~SEQ ID NO.: 2 or~~ SEQ ID NO.: 6, wherein Ser is substituted for Thr, such that a free-OH group is maintained and which exhibits IL-2R β -chain binding activity and/or lymphocyte stimulatory activity.

Claim 25 (Currently Amended). The peptide of ~~Claim 15 or~~ Claim 16, which is a homologous sequence of ~~SEQ ID NO.: 2 or~~ SEQ ID NO.: 6, wherein Gln is substituted for Asn such that a free-NH₂ group is maintained and which exhibits IL-2R β -chain binding activity and/or lymphocyte stimulatory activity.

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Claim 26 (Currently Amended). The peptide of ~~Claim 15 or~~ Claim 16, which is a homologous sequence of ~~SEQ ID NO.: 2 or~~ SEQ ID NO.:6 and exhibits lymphocyte stimulatory activity, wherein said lymphocyte stimulatory activity comprises induction of SHC phosphorylation; or induction of the SHC/MAPK pathway.

Claim 27 (New). The peptide of Claim 16, which has the sequence of SEQ ID NO:8.

Claim 28 (New). A composition comprising the peptide of Claim 16 and a carrier.

Claim 29 (New). The composition of Claim 28, which further comprises one or more cytokines.

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Claim 30 (New). The composition of Claim 29, wherein said one or more cytokines are selected from the group consisting of IL-2, IL-4, IL-9, IL-7 or IL-15.

Claim 31 (New). A method of detecting the presence of IL-2R in a mammalian biological sample, comprising

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contacting the mammalian biological sample with the peptide of Claim 16 under conditions suitable to allow binding of IL-2R and the peptide;

detecting the presence or absence of binding, wherein the presence of binding indicates the presence of the IL-2R in the mammalian biological sample.

Claim 32 (New). The method of Claim 31, wherein the peptide further comprises a detectable label.

Claim 33 (New). A method of inhibiting the activity of IL-2R, comprising contacting the IL-2R with the peptide of Claim 16 in an amount sufficient to inhibit binding of IL-2 to said IL-2R.

Claim 34 (New). A method of inducing IL-2 activity in a mammal, comprising administering the peptide of Claim 16 to said mammal in an amount sufficient to induce IL-2 activity.

Claim 35 (New). The method of Claim 34, wherein the mammal is a human.

Claim 36 (New). The method of Claim 34, which further comprises administering one or more cytokines.

Claim 37 (New). The method of Claim 36, wherein said one or more cytokines are selected from the group consisting of IL-2, IL-4, IL-9, IL-7, and IL-15.

Claim 38 (New). The peptide of Claim 16, which further comprises a detectable label.

Claim 39 (New). A composition comprising the peptide of Claim 38 and a carrier.

Claim 40 (New). A kit comprising the peptide of Claim 16 and reagents for labeling the peptide and detecting the labeled peptide.

Claim 41 (New). A kit comprising the peptide of Claim 38 and reagents for detecting

the label.
